

FIG 2.

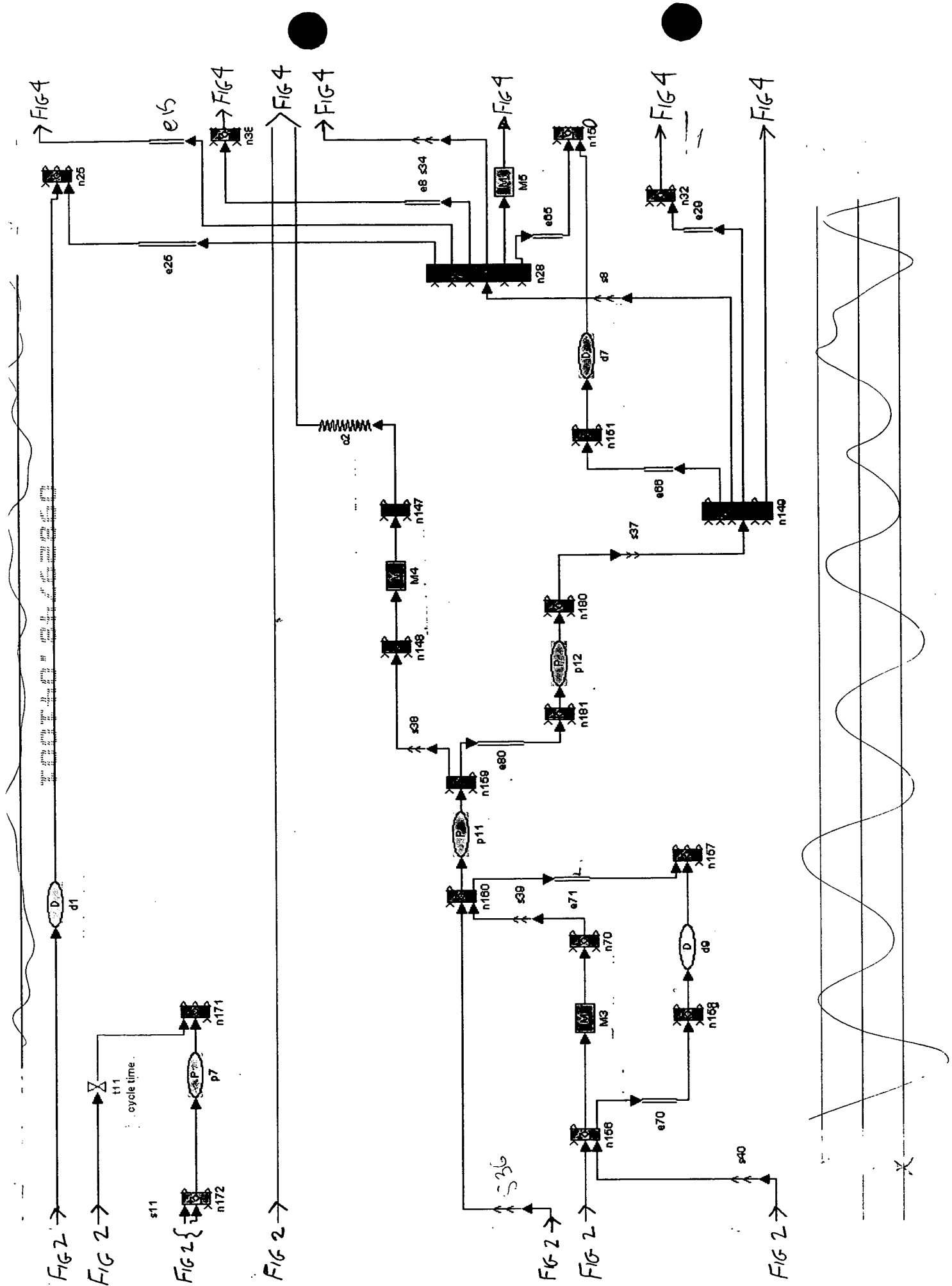
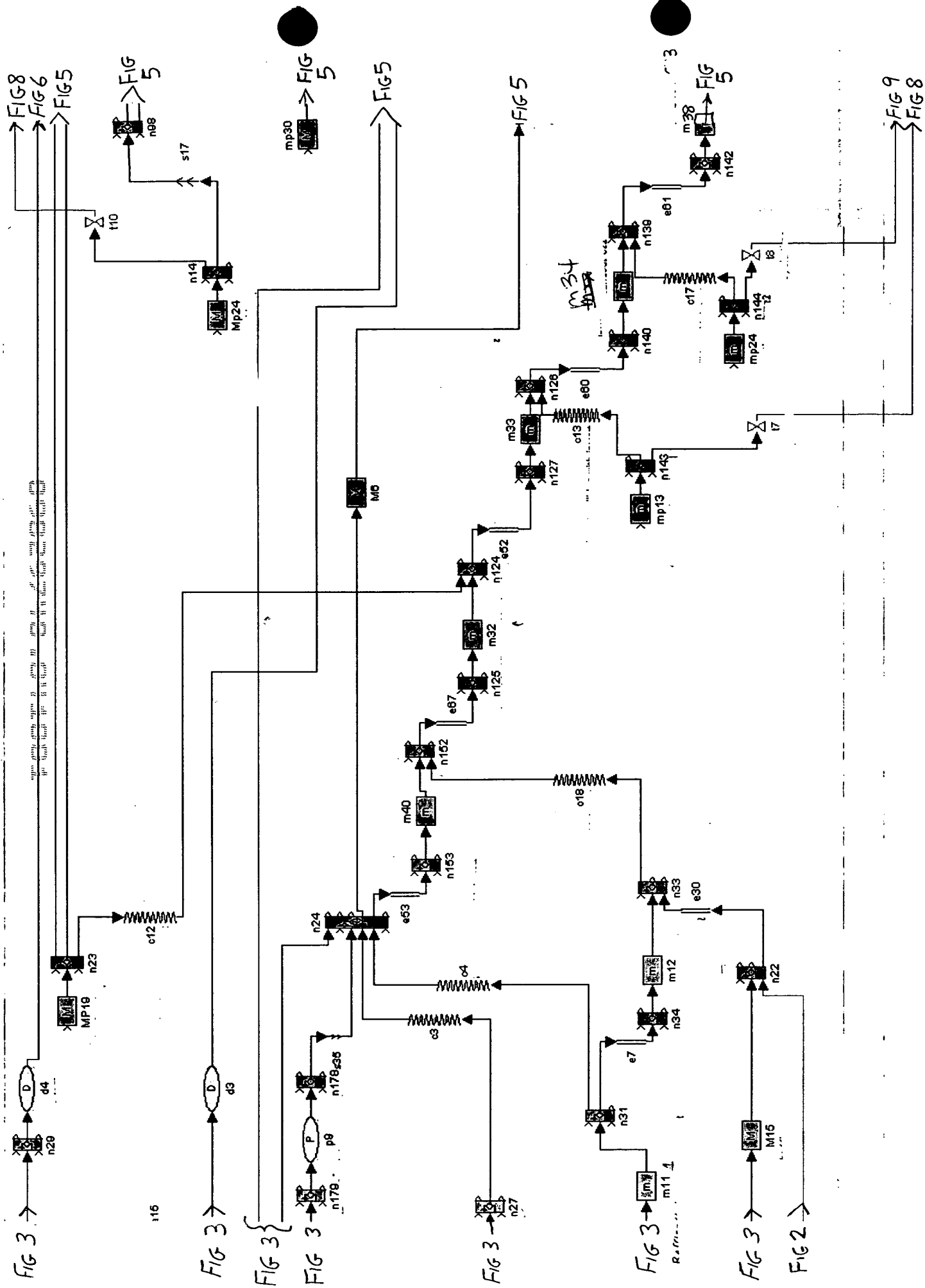


FIG 3



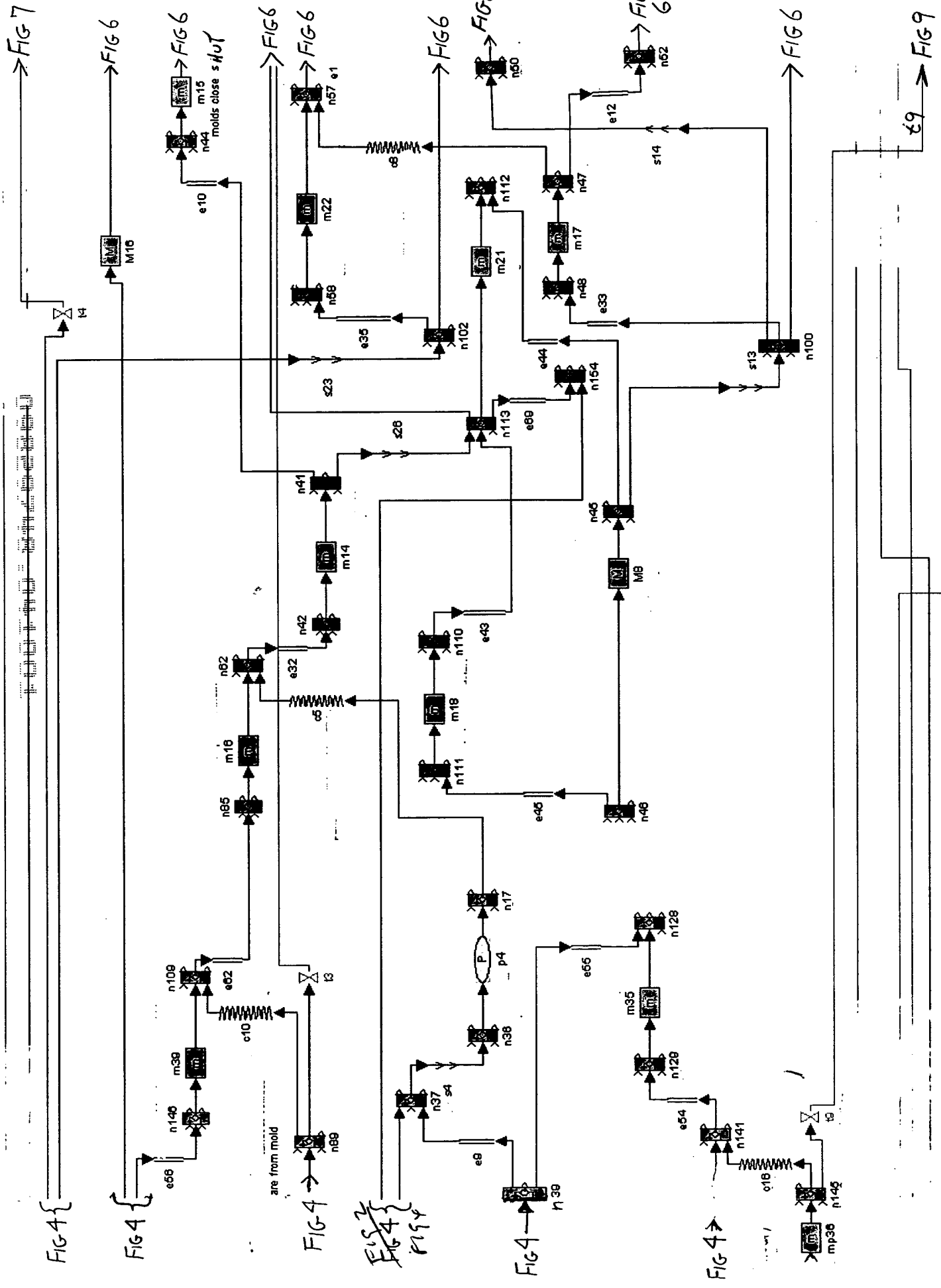


FIG 5

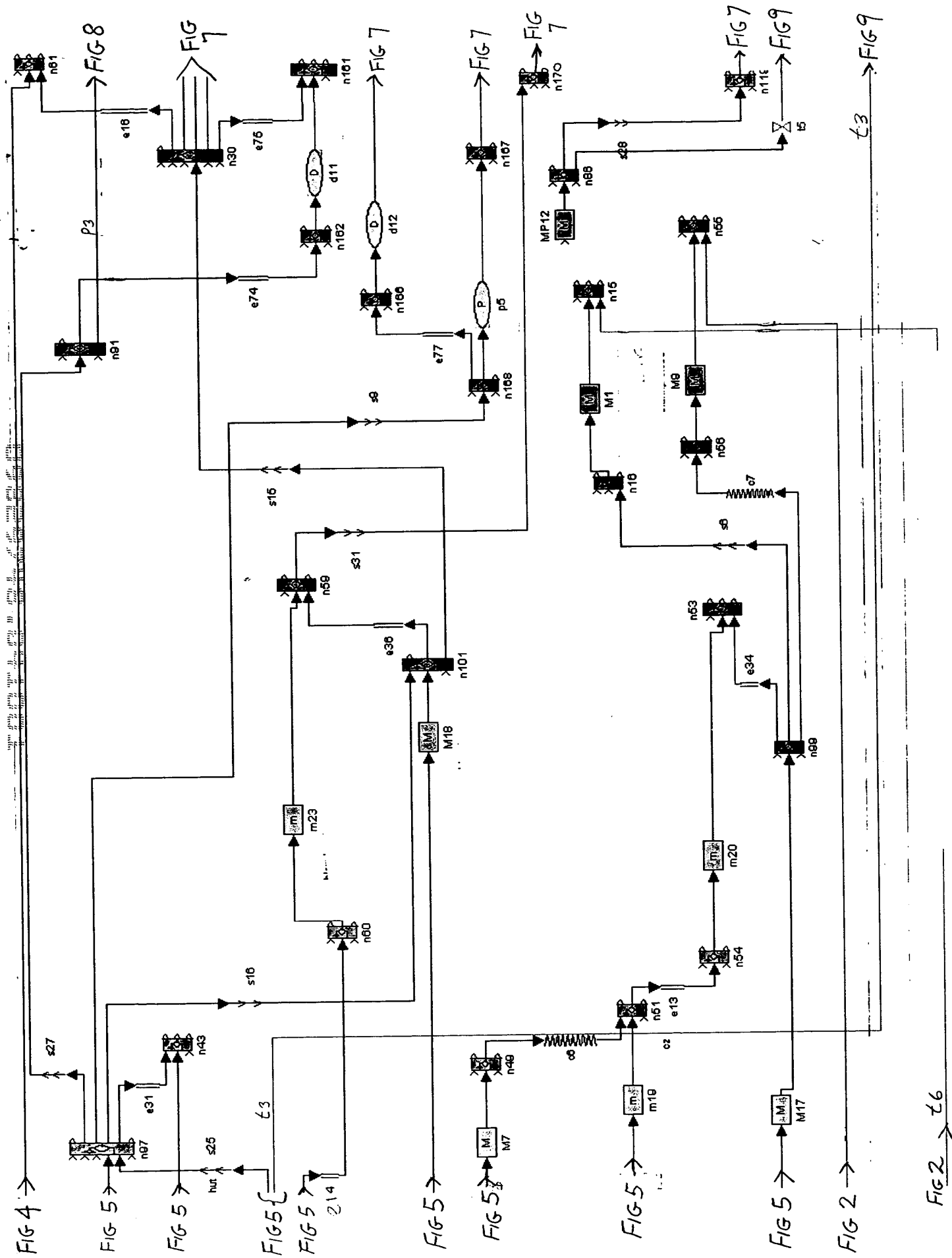
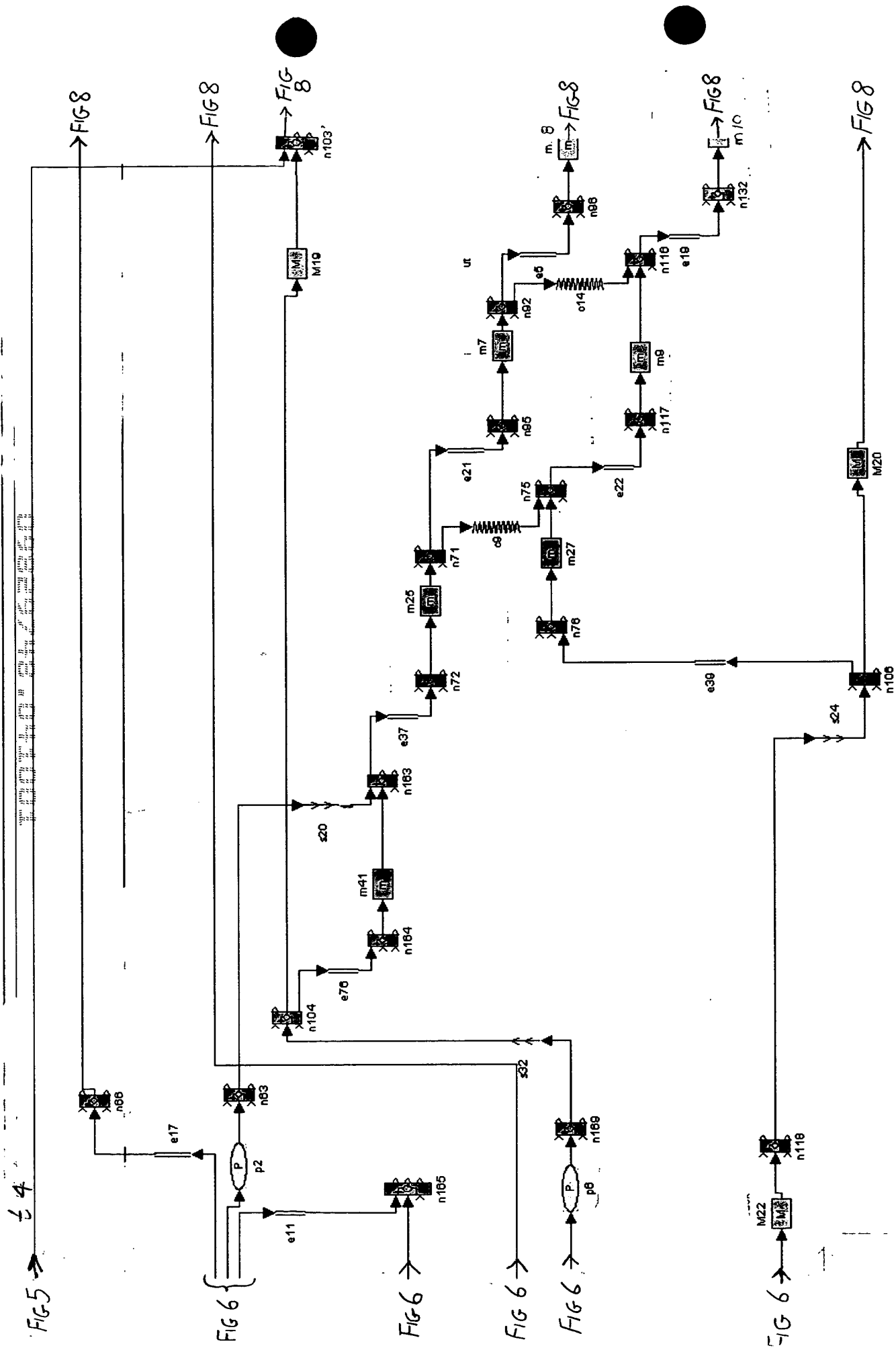


FIG 6



757

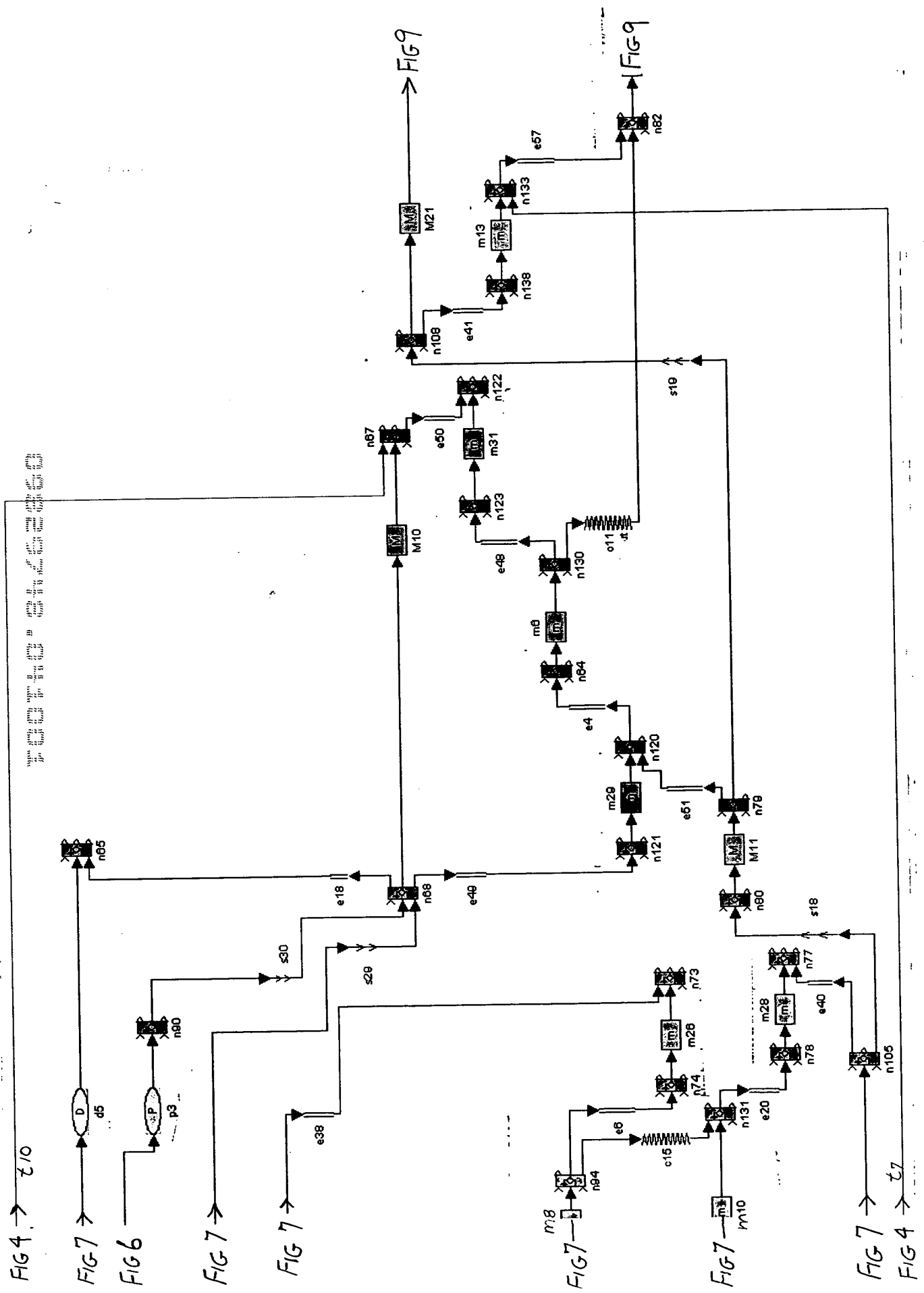
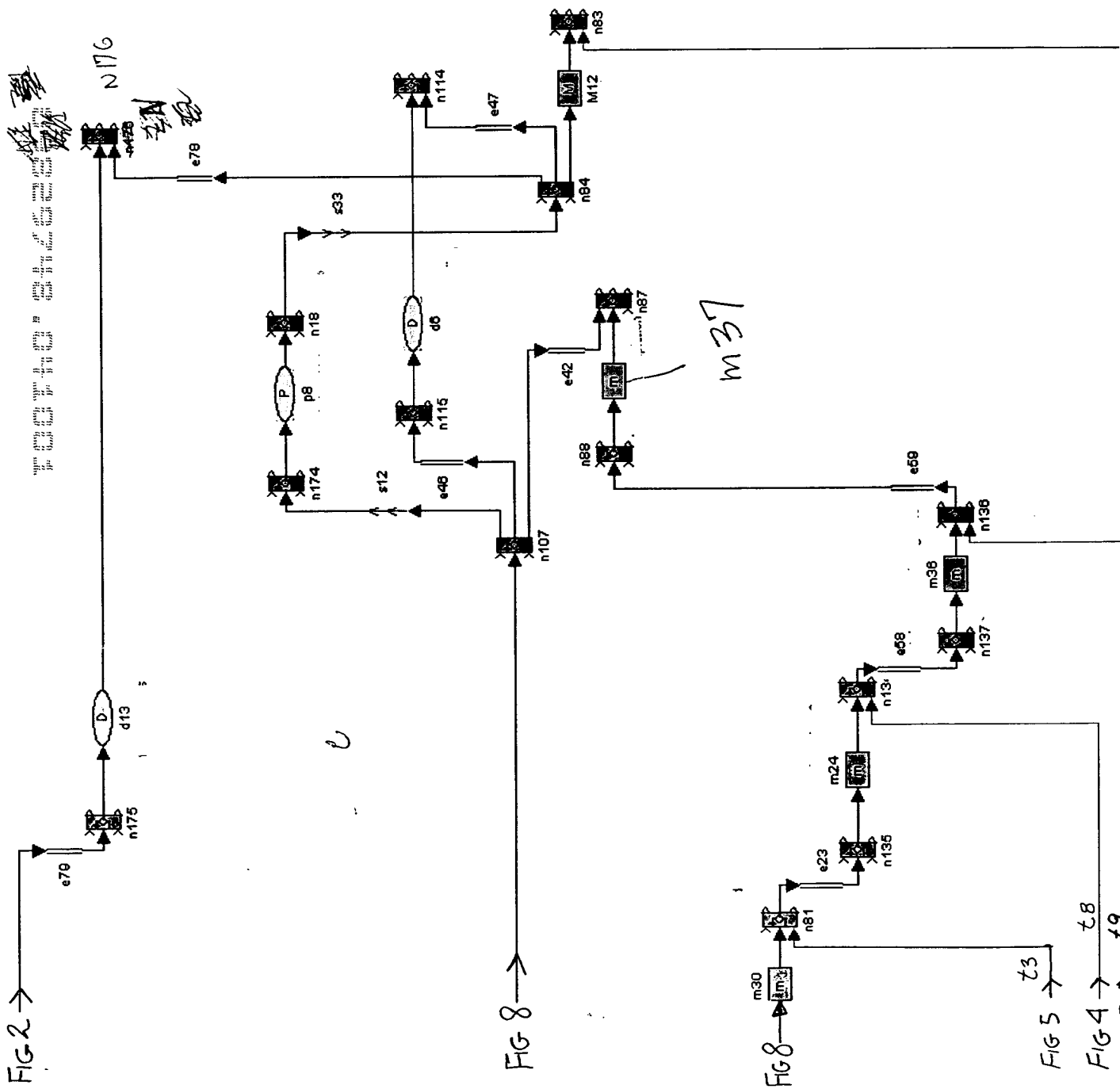


FIG 8





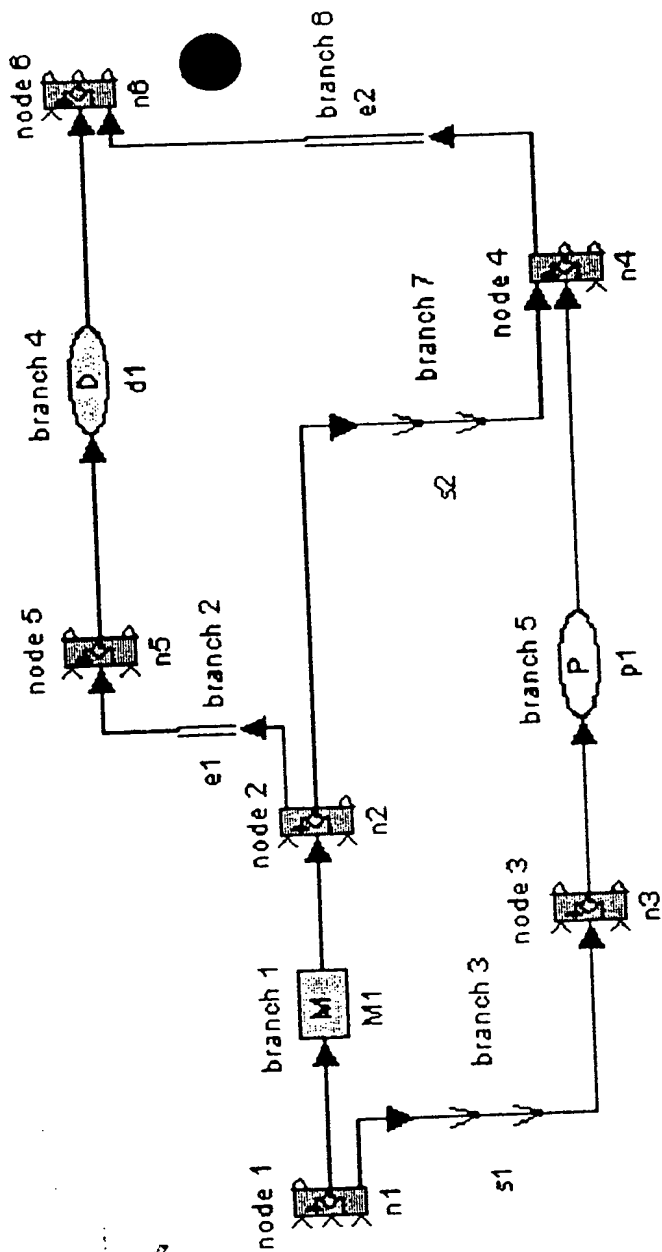


Fig- 10

G H

	Events	ON	OFF
1			
2	Gob Interceptor	334	14
3	Blanks Close	324	130
4	Blanks Open	130	321
5	Plunger Up	33	123
6	First Baffle	9	125
7	Plunger Down	127	327
8	Funnel	1	150
9	Settle Blow	1	1
10	Plunger Cooling	150	260
11	Invert	200	260
12	Neckring Open	274.5	283
13	Revert	282	172
14	Molds Close/Open	229	170
15	Mold Cooling	10	150
16	Blowhead	290	113
17	Final Blow	348	120
18	Take Out IN	137	197
19	Tongs Close	178	78
20	Take Out OUT	197	90

Fig - 11

1004701 37402300

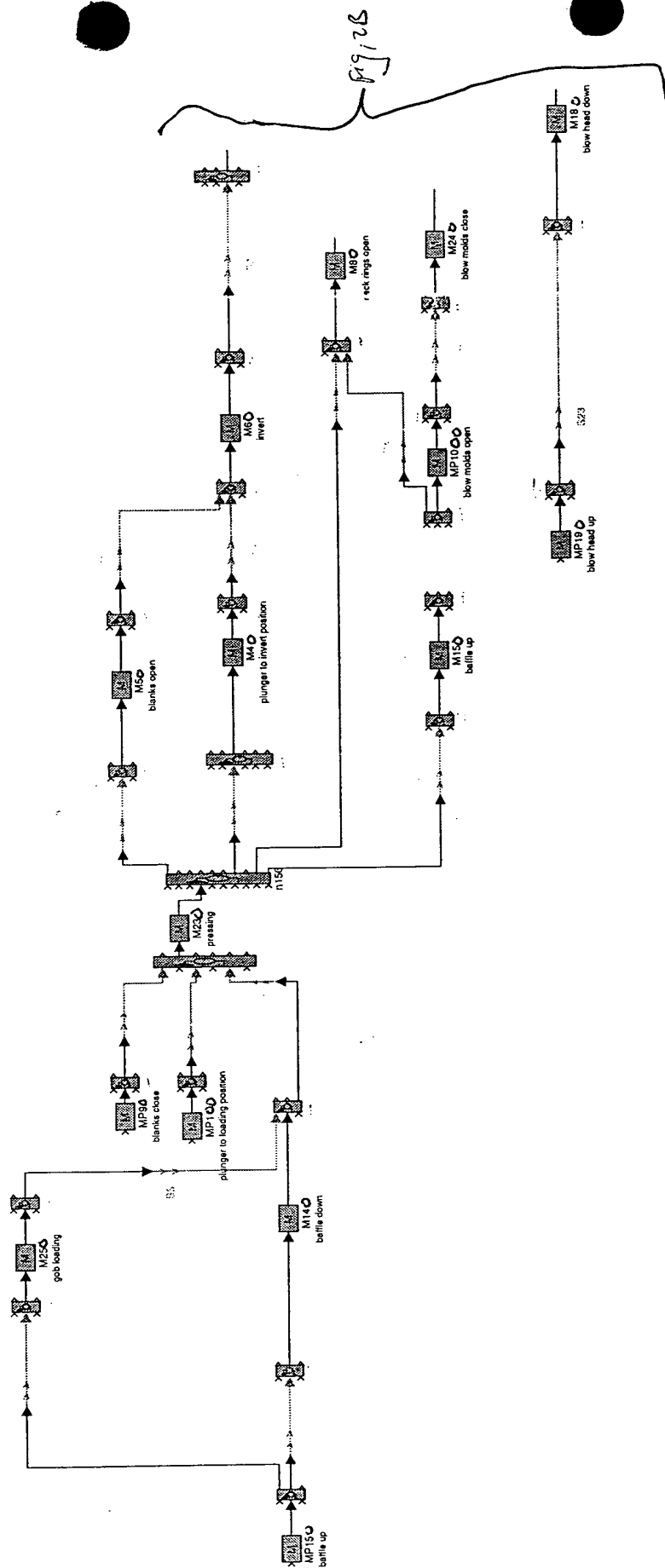


Fig-12A

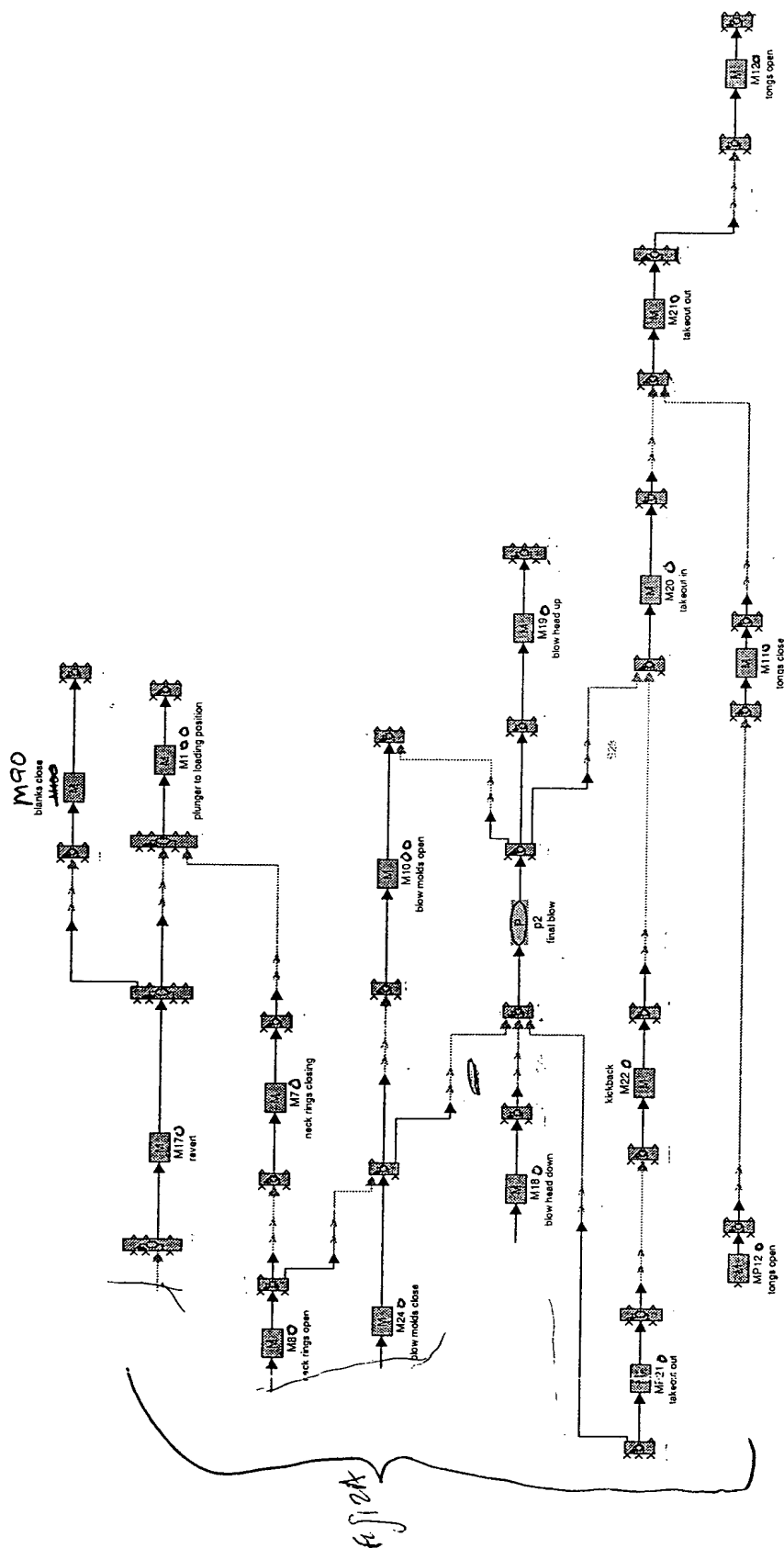


Fig 12B

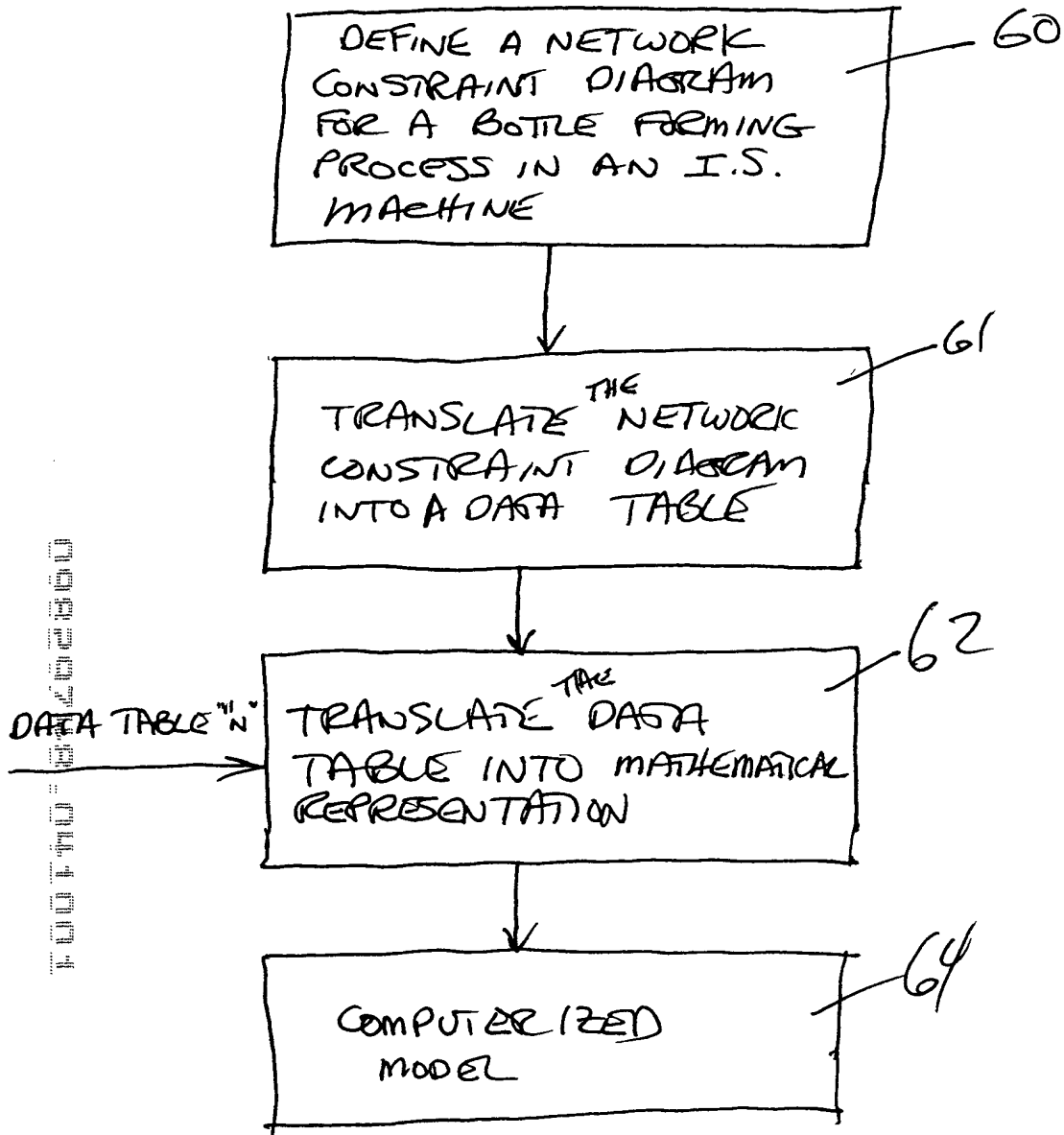


Fig-13

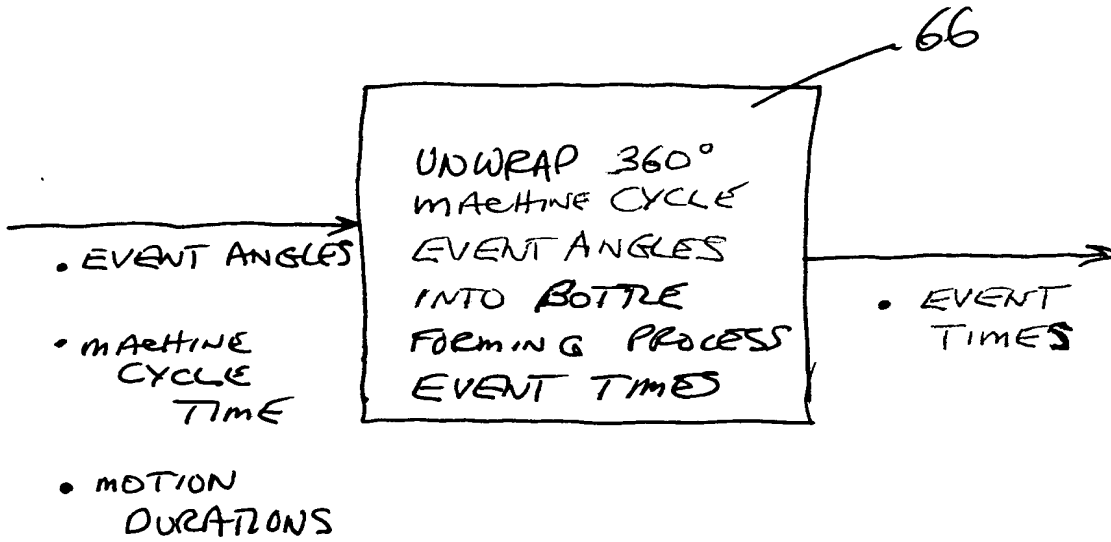
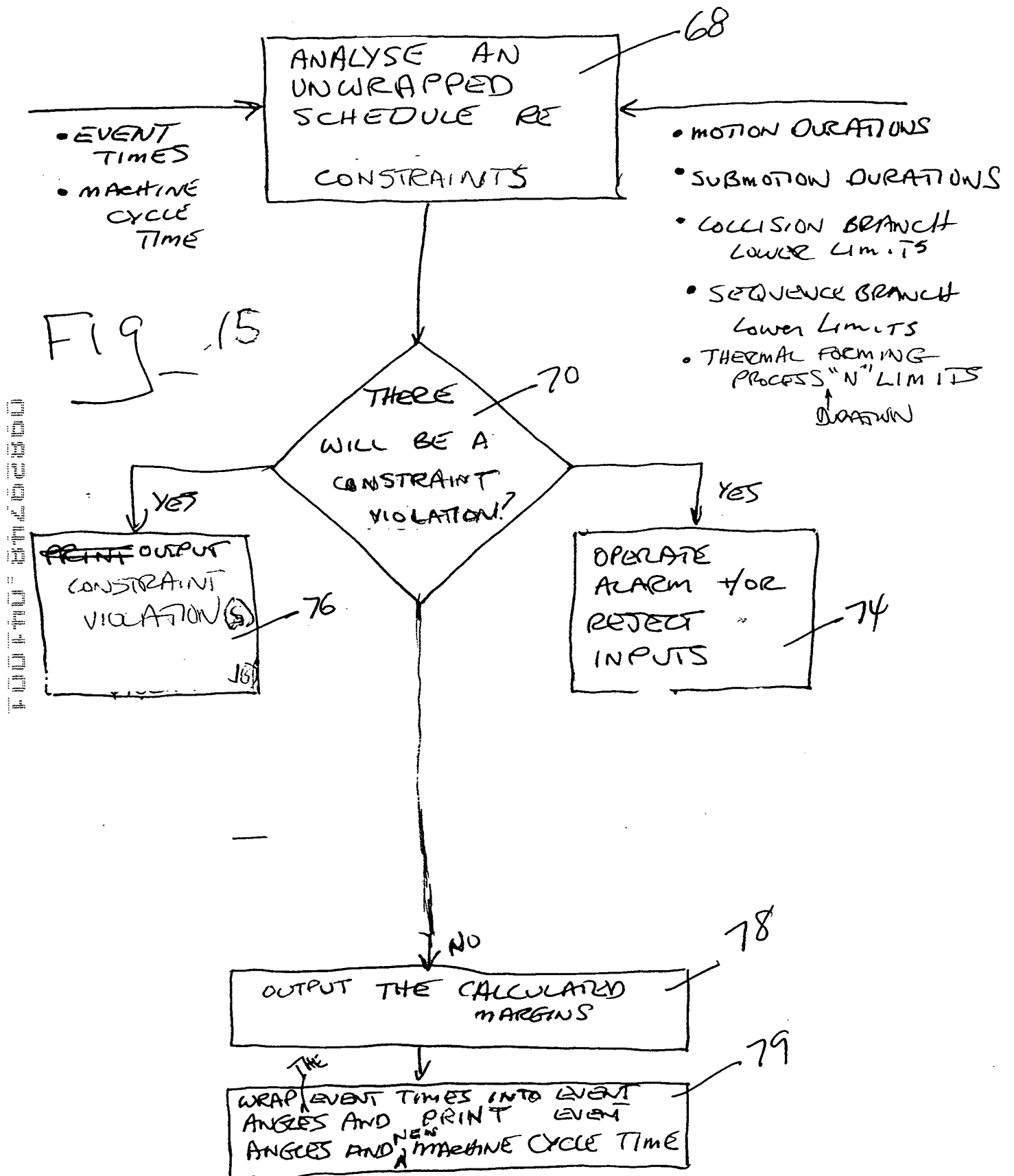
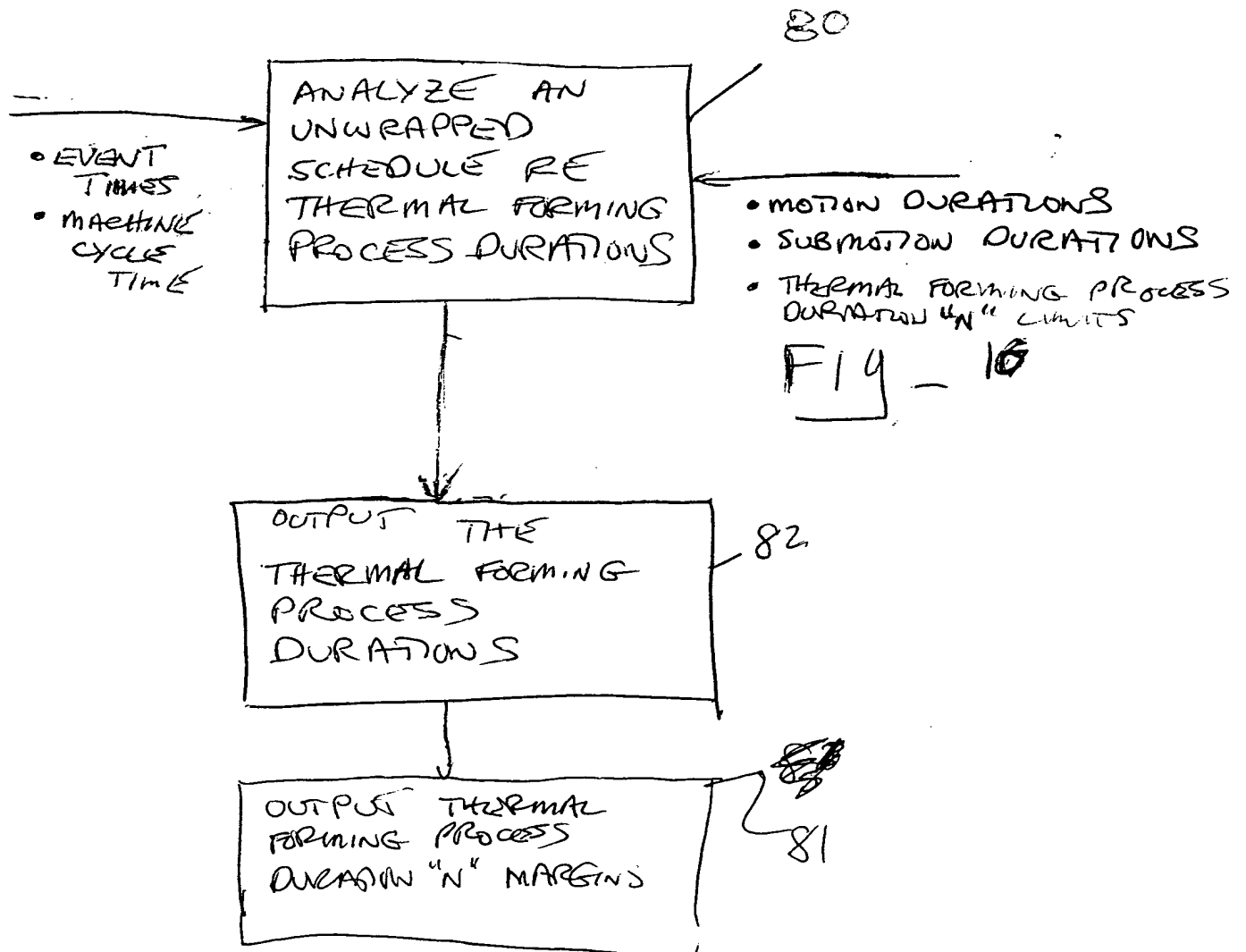
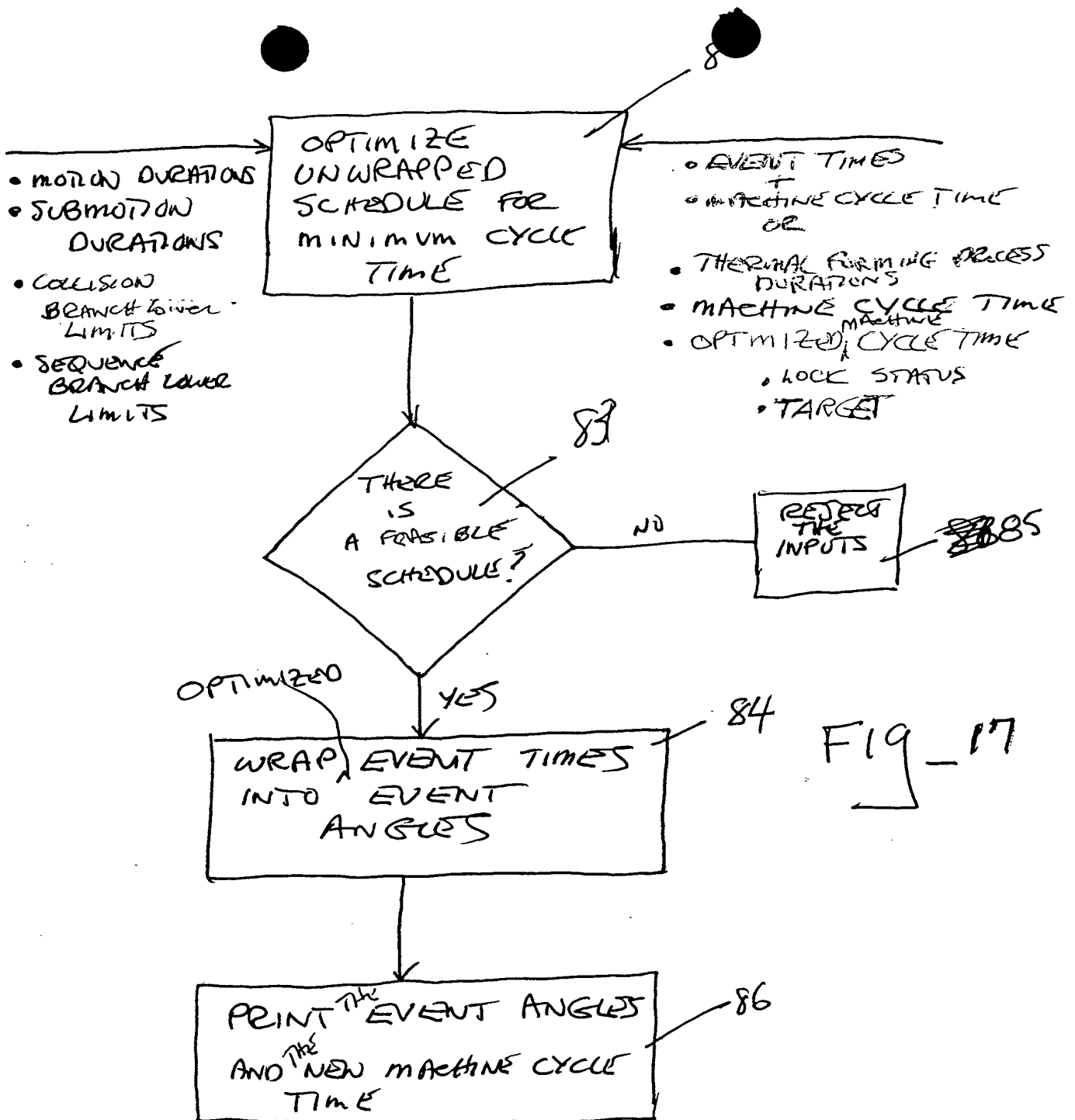


FIG - 14









- MOTION DURATIONS
- SUBMOTION DURATIONS
- COLLISION BRANCH LOWER LIMITS
- SEQUENCE BRANCH LOWER LIMITS
- EITHER  
+  
-  
EVENT TIMES
- MACHINE CYCLE TIME OR
- THERMAL FORMING PROCESS DURATIONS

OPTIMIZE UNWRAPPED SCHEDULE

THERMAL FORMING PROCESS DURATION "N"

THERE IS A  
★  
FEASIBLE SCHEDULE

NO

REJECT THE INPUT(S)

YES

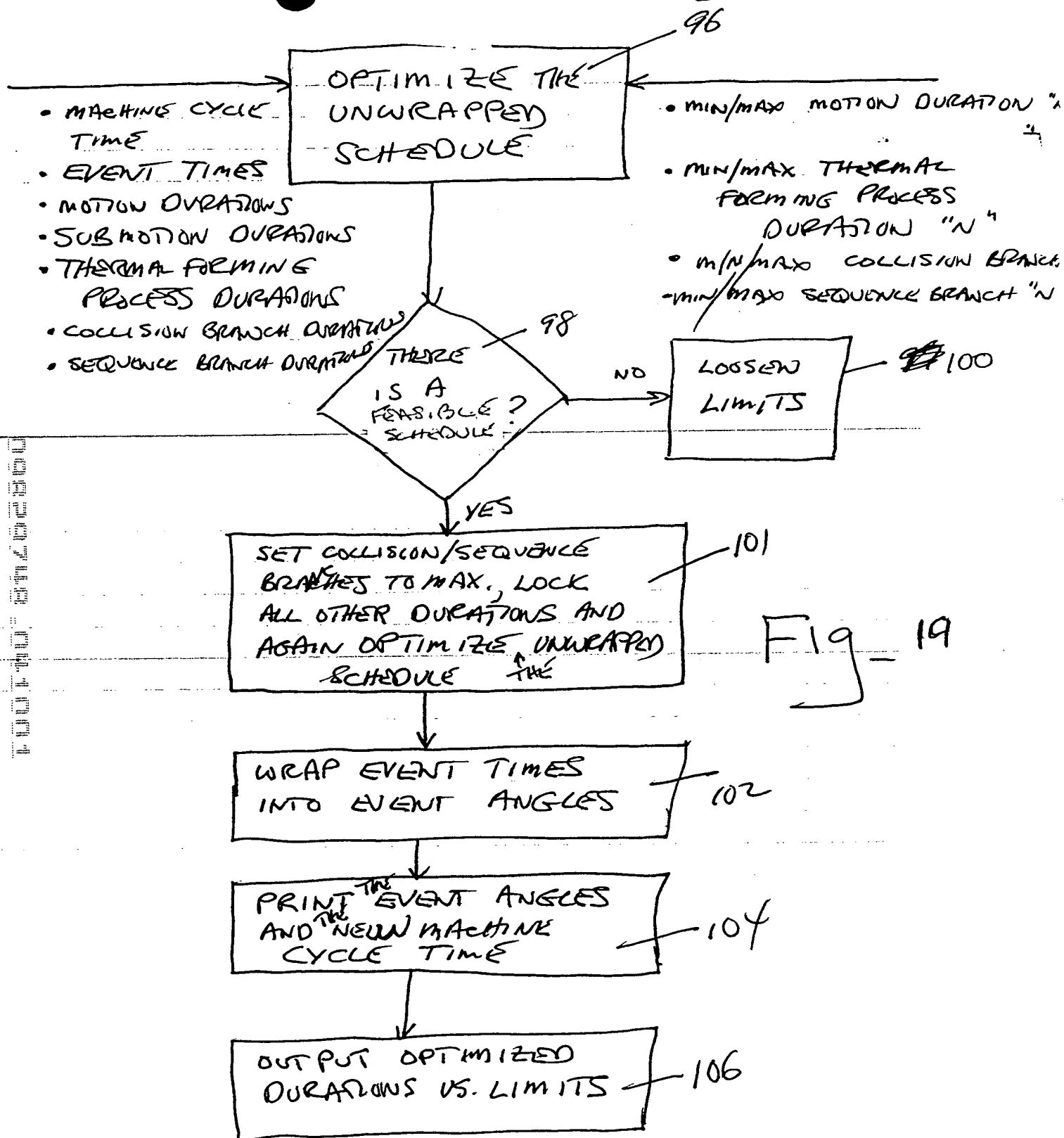
OUTPUT THERMAL FORMING PROCESS DURATIONS

OPTIMIZED

WRAP EVENT TIMES INTO EVENT ANGLES

PRINT EVENT ANGLES AND NEW MACHINE CYCLE TIME

FIG-18



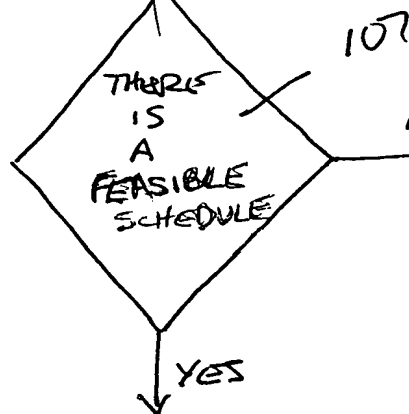
```

graph TD
    107{107  
THERE IS A  
FEASIBLE?  
SCHEDULE} -- NO --> 100[100  
Loose Limits]
    107 -- YES --> 108{108  
THERE IS  
AN ACTIVE  
CONSTRAINTS  
THAT RESTRICTS  
FURTHER  
IMPROVEMENT}
    108 -- YES --> 110[110  
OUTPUT THE  
ACTIVE  
CONSTRAINT]
  
```

Fig-20

Fig-20

OPTIMIZE  
UNWRAPPED  
SCHEDULE



LOOSEN  
LIMITS

100

112

OPTIMIZE THE  
UNWRAPPED SCHEDULE  
LOCKING ALL VARIABLES  
EXCEPT SERVO  
MOTION DURATIONS AND  
SETTING A SERVO MOTION  
DURATIONS AT LARGE VALUE

PRINT THE  
OPTIMIZED  
DURATION FOR  
SERVO MOTOR "N"

114

DELIVER THE OPTIMIZED  
DURATION FOR SERVO  
MOTOR "N" TO SERVO  
MOTOR "N" CONTROLLER

116

ROUTE DURATION OF  
SERVO MOTOR "N" FROM  
SERVO MOTOR "N" CONTROLLER  
TO SERVO MOTOR "N"  
AMPLIFIER DRIVE CARD

118

CHANGE TO OPTIMIZED  
DURATION IN DIGITAL  
SIGNAL PROCESSOR

AMPLIFIER

FIG\_21